***Converting fun, 4.23 to 1***

**Prepared by: Jennifer Strawn**

**BCTAL Richland TAFE/FEA Chapter**

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| **Lesson Name: Converting fun, 4.23 to 1**  **7th Grade Pre-Algebra**  **North Ridge Middle School – Lexy Smith, Mentor Teacher** |
| **Topic of the Lesson: Converting measurements between the metric and customary system** |
| **Age Range/Grade Level/Content Area: 11 to 13 years/seventh grade/mathematics** |
| **Materials Required:**   * **liter container** * **5 cups per liter container** * **water (or other liquid)** * **meter stick** * **rulers** * **cell phone or chrome book** * **independent practice problem worksheet** * **powdered drink flavoring mix** |
| **Time Required: 45 minutes (1 class period)** |
| **TEKS and Bloom’s level: 7.4 (E) The student applies mathematical process standards to represent and solve problems involving proportional relationships. The student is expected to convert between measuring systems including the use of proportions and the use of unit rates.**  **Bloom’s Level:**  **1. Evaluate: Students form a hypothesis of the number of cups in a liter.**  **2. Create: Students pour liter into cups and explain how to construct a plan to figure out how many cups will be in multiple liters.**  **3. Analyze: Students deconstruct a large value into smaller measurements and compare the different systems.** |
| **Introduction/Purpose:**  **To introduce the lesson, I explained that the students were going to convert between measurement systems, but first, they would determine the conversion factors based off of the activity.**  **The purpose of the lesson is for the students to be able to convert values from one system to another using proportions for cross products and unit rates for scale factor. I used a visual math concept strategy in order for the students to discover the math prior to being taught. I learned this strategy as a UNT math breakout session at TAFE region last year and learned that teaching math in this way appeals to students rather than notes and direct teaching methods.** |
| **Learning Activities/Step-by-Step Procedures:**   1. Place one liter-sized container filled with water (or another liquid), 5 cup-sized containers, one meter stick, and two rulers per table group 2. Ask students to hypothesize how many cups are in one liter. 3. Students must work together and pour the water into one cup containers   MacintoshHD:Users:bisd000299:Desktop:Screenshot 2014-11-03 12.51.34.png   1. Students will discover the estimated number of cups that are in a liter before I give them the exact conversion factor. Ask them to determine if their hypothesis was correct. 2. Ask students to hypothesize how many cups would be in two liters and how they would construct a plan to figure it out. Do an example problem converting 3 liters to cups. 3. Ask students to hypothesize how many feet are in one meter. 4. Students must work together to measure a meter stick using rulers, so students can discover the estimated number of feet that are in a meter before I give them the exact conversion factor. Ask them to judge if their hypothesis was correct.   MacintoshHD:Users:bisd000299:Desktop:Screenshot 2014-11-03 12.58.30.png   1. Ask students to hypothesize how many feet would be in two meters and how they would construct a plan to figure it out. Do an example problem converting six meters to feet. 2. Pass out independent practice worksheet that they will work on after I walk them through the first two questions using scale factor and proportions. <http://goo.gl/n7TO75> (Google doc) 3. Student will continue to complete the rest of the work sheet in their table groups. And one person in each group will sign into <http://www.socrative.com> website.   MacintoshHD:Users:bisd000299:Desktop:Screenshot 2014-11-03 13.02.22.png   1. As the students solved the conversion problems, one group member will submit the answer they found onto the <http://www.socrative.com> website, so I can access the students understanding. |
| **Guided/Independent Practice: Students will work in groups on converting measurements between the metric and customary system using both scale factor and cross products** |
| **Closure/Summary: Now students understand how to convert between measurement systems using both scale factor and proportions** |
| **Assessment/Evaluation:** [**http://www.socrative.com**](http://www.socrative.com) **allows students to place answers online and they will show on the board, it will place the data into an Excel spread sheet that you can save and/or print** |
| **Relevancy: This is a necessary skill in a well-rounded person because the United States uses the customary system while other countries use the metric system, so converting is a relevant skill to have in both traveling and working in a global society.** |
| **Resource Files Included: Below is the link to the Socrative Website**  [**http://www.socrative.com**](http://www.socrative.com) |